

## ***Enterococcus* growth on eelgrass (*Zostera marina*); implications for water quality**

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### **ABSTRACT**

*Enterococci* are fecal indicator bacteria used to monitor fecal pollution of recreational waters. When *enterococci* levels exceed health standards, fecal pollution is assumed as the cause. *Enterococci* growing on plants limit their usefulness as fecal indicator bacteria. Here we examined enterococcal growth on eelgrass in Mission Bay, CA where *enterococci* levels have exceeded water quality thresholds. A total of 69 eelgrass samples were collected from six sites, shaken to remove *enterococci* attached to plant surfaces and the eluant filtered onto culture media. Isolates were then identified to species using biochemical methods, and DNA typing by pulsed-field gel electrophoresis was done to assess clonality of strains. *Enterococci* concentrations among eelgrass ranged from 8 to 14 000 CFU g<sup>-1</sup> dry weight. The most predominant enterococcal species found were *Enterococcus casseliflavus* and *E. hirae* followed by *E. faecalis*. Cluster analysis indicated a high level of clonality among isolates across all species, with clonal isolates consistently associated with individual eelgrass samples. Finding high densities of *E. casseliflavus*, *E. hirae* and *E. faecalis* on eelgrass that included clonal strains indicates the capability of enterococcal growth on eelgrass. Amplification of *enterococci* on eelgrass presents challenges for regulatory agencies that interpret elevated levels of these bacteria as an indication of fecal pollution.

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